

University of Groningen

Hyperacute stroke care - Improving acute stroke services in the Netherlands

Lahr, Maarten M. H.; van der Zee, Durk-Jouke; Luijckx, Gert-Jan; Vroomen, Patrick C. A. J.; Buskens, Erik

Published in:
BMJ-British Medical Journal

DOI:
[10.1136/bmj.g3957](https://doi.org/10.1136/bmj.g3957)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Final author's version (accepted by publisher, after peer review)

Publication date:
2014

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Lahr, M. M. H., van der Zee, D-J., Luijckx, G-J., Vroomen, P. C. A. J., & Buskens, E. (2014). Hyperacute stroke care - Improving acute stroke services in the Netherlands. *BMJ-British Medical Journal*, 348, [3957]. <https://doi.org/10.1136/bmj.g3957>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

LETTERS

HYPERACUTE STROKE CARE

Improving acute stroke services in the Netherlands

Mgaarten M H Lahr *postdoctoral researcher*¹, Durk-Jouke van der Zee *associate professor*², Gert-Jan Luijckx *consultant stroke physician*¹, Patrick C A J Vroomen *consultant stroke physician*¹, Erik Buskens *professor of medical technology assessment, program director Healthy Ageing*³

¹Department of Neurology, University Medical Centre Groningen, University of Groningen, 9700 RB Groningen, Netherlands; ²Department of Operations, Faculty of Economics and Business, University of Groningen, 9747 AE Groningen, Netherlands; ³Medical Technology Assessment, Department of Epidemiology, University Medical Centre Groningen, University of Groningen, 9700 RB Groningen, Netherlands

Monks and colleagues report on England's NHS business plan for hyperacute stroke care.¹ A similar debate on the reorganisation of acute stroke services is ongoing in the Netherlands.

In 2013, the Health Care Insurance Board (CVZ, currently named National Health Care Institute (ZiNL)) published a nationwide quality vision on emergency healthcare.² In 2010 a six month observational multicentre study in the north of the Netherlands showed a one in five thrombolysis rate in a centralised organisational model compared with an average one in seven rate in decentralised care administered in community hospitals—that is, a 50% increase.³ Thrombolysis rates in community hospitals ranged from 9% to 23%.

Using a simulation model, we identified organisational barriers that might when tackled increase thrombolysis rates. Such experimentation shows the potential for improvement already possible through comparatively simple interventions.¹ We found that providing a point of care device to reduce time to laboratory analysis and introducing a “scoop and run” protocol for ambulance staff substantially improved rate and timing of thrombolysis delivery in our setting.⁴ We also modelled the impact on thrombolysis rates and patient outcome in a decentralised care system.⁵ Pre-hospital factors were the most promising for improving thrombolysis rates.

A lot of work remains to be done. Firstly, although simulation models might assist in providing an a priori assessment of

improved service delivery, projected benefits have to be substantiated in clinical practice after implementation of suggested improvements. Secondly, the costs associated with reorganising services and staff in the case of centralisation have to be assessed. Again, simulation modelling might help in clarifying these issues—for example, by allowing linkage of costs to particular care services such as ambulance transportation, computed tomography scanning, and laboratory examination.

Competing interests: None declared.

Full response at: www.bmj.com/content/348/bmj.g3049/rr/697344.

- 1 Monks T, Pitt M, Stein K, James MA. Hyperacute stroke care and NHS England's business plan. *BMJ* 2014;348:g3049. (2 May)
- 2 Health Care Insurance Board (CVZ). Quality vision on emergency care. 2013. www.zn.nl/nieuws/pers/persbericht/?newsId=6aa7b447-5522-4387-abc8-0900d23cd57e.
- 3 Lahr MM, Luijckx GJ, Vroomen PC, van der Zee DJ, Buskens E. Proportion of patients treated with thrombolysis in a centralized versus a decentralized acute stroke care setting. *Stroke* 2012;43:1336-40.
- 4 Lahr M, van der Zee D, Luijckx G, Vroomen P, Buskens E. A simulation based approach for improving utilization of thrombolysis in acute brain infarction. *Medical Care* 2013;51:1101-5.
- 5 Lahr MM, van der Zee DJ, Vroomen PC, Luijckx GJ, Buskens E. Thrombolysis in acute ischemic stroke: a simulation study to improve pre- and in-hospital delays in community hospitals. *PLoS One* 2013;8:e79049.

Cite this as: *BMJ* 2014;348:g3957

© BMJ Publishing Group Ltd 2014